

UNIVERSITY of HOUSTON

CULLEN COLLEGE of ENGINEERING

Department of Civil & Environmental Engineering

Professor Liberato Ferrara

Politecnico de Milano

High Performance Fiber-Reinforced Cementitious Composites: From Materials to Structures

About the speaker:

Thursday, March 22, 2012

11:15 a.m. Refreshments

11:30 – 1:00 p.m. Seminar

Room W102-D Engineering Bldg. 1, UH

Abstract

Adding fibers to self-consolidating mixes is favored by the superior fresh-state performance of SCC, which allows a more homogeneous dispersion of the discrete wire-like reinforcement. Such a positive synergy between SCC and FRC technologies is instrumental in promoting reliable structural applications. By optimizing the fresh-state properties of the mix, fibers can be effectively oriented along the direction of the fresh-concrete flow. Hence, better mechanical properties are obtained in this direction, something that may be required by specific applications, to obtain a deflection-hardening or strain-hardening behavior.

With reference to an Italian ongoing project, the steps of a "holistic" approach to the design of Self-Consolidating High-Performance Fiber-Reinforced Concrete (SCHPFRC) members are presented and discussed, in order to optimize the material and the structure, starting from the mix and the casting process. In so doing, a closer correspondence between the shape of the member and its functions within the structure can be obtained.



Liberato Ferrara, PhD, is an Assistant Professor of Structural Analysis and Design at Politecnico di Milano, Italy. He is a member of ACI Committees 236 - Material Science of Concrete, 237 - Self consolidating concrete, 238 - Workability of fresh concrete, and 544 - Fiber reinforced concrete, as well as of RILEM TC MPS - Mechanical Properties of SCC and SFC "Simulation of Fresh-Concrete Flow". He is also co-chairman of Fib TG 8.8 - Design with highly-flowable concrete. His research interests include concrete fracture and damage mechanics, and high-performance advanced cement-based materials, including fiber-reinforced concrete and self-consolidating concrete.

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